Claims

1. A process for selectively converting dihydroxy-or polyhydroxy alcohols into carbonyl compounds using dioxygen (O_2) as oxidant in the presence of a catalytic system comprising (1) a copper salt, a copper salt containing a heterocyclic ligand or a copper complex salt, and (2) a base.

2. A process according to claim 1, wherein

the copper salt is selected from CuCl, CuBr, CuI, $CuNO_3$, $CuBF_4$, $CuSO_4$, $CuPF_6$;

the ligand is selected from 1,10-phenanthroline, 5-methyl-1,10-phenanthroline, 2,9-dimethyl-1,10-phenanthroline, 4,7-dimethyl-1,10-phenanthroline, 3,4,7,8-tetramethyl-1,10-phenanthroline, 4,7-dihydroxy-1,10-phenanthroline, bathophenantroline, bathocuproinedisulfonate, 2,2'-bipyridine, 2,2'-bipyridyl-3,3'-dicarboxylate, 2,2'-biquinoline, bis(2-pyridylethyl)amine, tris(2-pyridyl-ethyl)amine, 2-pyridyl-(N-tert. butyl)-methylimine, (2-pyridyl)methanol, ethylene(2,5-dihydroxy-phenylimine) or bis(2-hydroxy-3,5-di(tert. butyl)-phenyl)sulfide;

the copper complex salt is $[M_4(Cu_4OCl_{10})]$ or $[M(CuCl_3)]$ or $[M_2(CuCl_4)]$ or mixtures thereof wherein M is an alkali metal cation, $[R_1R_2R_3R_4N]_4(Cu_4OCl_{10})]$ or $[R_1R_2R_3R_4N](CuCl_3)]$ or $[R_1R_2R_3R_4N]_2(CuCl_4)]$ or mixtures thereof wherein R_1-R_4 is independently of one another C_1-C_6 alkyl, phenyl or benzyl;

the base is selected from Li(OH); $NaHCO_3$; Na_2CO_3; Na(OH); K_2CO_3; K(OH); MgO; $CaCO_3$; $Ca(OH)_2$; $BaCO_3$; Al_2O_3 (basic); a quaternary ammonium salt or a hydrate thereof $[R_1R_2R_3R_4N](OH)$; $[R_1R_2R_3R_4N](Hal)$, wherein Hal is halogen and R_1-R_4 is as defined above; an alcoholate $Na(OR_5)$, $K(OR_5)$ wherein R_5 is C_1-C_6alkyl or a heterogeneous basic supports selected from amberlite, ambersep, sepiolite, hydrotalcit or bentonit.

3. A process according to claim 1 or 2, wherein the copper salt is CuCl; the ligand is a phenanthroline ligand; the copper complex is $[R_1R_2R_3R_4N](Cu_4OCl_{10})]$ and the base is a quaternary ammonium salt or a hydrate thereof.

4. A process according to any one of claim 1-3, wherein the catylytic system is CuCl/1,10-phenanthroline/$[(CH_3)_4N]OH\bullet 5\ H_2O$ or CuCl/$[(CH_3)_4N]OH\bullet 5\ H_2O$.

5. A process according to any one of claim 1-4, wherein the process is carried out in the presence of a solvent at a temperature in the range of 30-140°C.